

enclosures at rates in the 100,000-cfm range is not compatible with the near-zero release concept of activity from the plant. Removal of trace concentrations of tritium, krypton, and iodine from very large air and gas flows is economically infeasible as well as technically unsound.

Key factors in reducing the quantity of radioactivity released to the environment to near zero include a reduction in the volume of effluents, low air in-leakage into cells, and avoidance of bypassing the contaminant trapping systems. The practical extent of the treatment of an effluent is determined in large measure by the volume of the effluent to be treated. A large shielded fuel examination facility (the High-Level Fuel Examination Facility at the National Reactor Testing Station in Arco, Idaho) is operating with an air infiltration rate of 0.004 cfm. It is believed that a practical infiltration rate for a 5-tonne/day reprocessing facility, designed for near-zero radioactivity release, is 100 cfm or less. To meet these objectives, a high degree of overall containment must be maintained during all phases of plant life, including routine operation, maintenance, and decommissioning at the end of the plant's useful life.

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